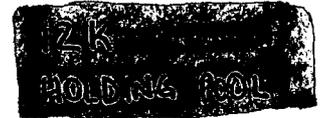


ANALYTICAL REPORT

O.H. Materials Corp.
16406 U.S. Route 224 East
P.O. Box 551
Findlay, Ohio 45839-0551
419-423-3526
Telex 298248 OHMI UR (RCA)



OHM



CLIENT: USEPA Region II
Newark, NJ

ATTN:

OHM PROJECT NUMBER: 5359-E4

SAMPLE TYPE: Liquid

OHM PROJECT MANAGER: J. Leporati

ANALYSIS PERFORMED:

Wastewater Treatment Disposal
(Sample: 5359-17)

DATE COMPLETED: 11-15-87

DATE RECEIVED: 11-07-87

This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of, the above named client only. O.H. Materials Corp. assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.

All of the analyses and data interpretation that form the basis of this report was prepared under the direct supervision and control of the undersigned who is solely responsible for the contents and conclusions therein.

Reviewed and
Approved by:


Robert J. Schock, Mgr.-ETC Findlay Laboratory

11-17-87
Date

433410



PROJECT 5359-E4SUMMARY REPORT OF ANALYTICAL SERVICESI. INTRODUCTION

O.H. Materials Corp. (OHM) Corporate Laboratory received 1 liquid sample from USEPA Region II, Arkansas Chemical, Newark, New Jersey. This sample was acquired by OHM's technical personnel and transferred to the laboratory complete with a chain-of-custody record, a copy of which is attached for reference. This sample was analyzed for Wastewater Disposal parameters.

II. ANALYTICAL METHODOLOGYo Total Phenols in Soil/Sediment

The samples were prepared by accurately weighing an approximate 20 g aliquot of each sample and then suspend the solid in 500 ml Lab Grade I water. The pH of the sample solutions were adjusted to pH 4 with 1 + 9 phosphoric acid, then 5 mls of 10% copper sulfate solution was added to each sample. Samples were mixed for one hour and prepared and analyzed according to EPA Methods for Chemical Analysis of Water and Wastes; EPA 600/4-79-020, Method 420.1, Phenolics, Total Recoverable, Spectrophotometric, Manual 4-AAP with Distillation.

o GC/MS Volatile Organic Analyses and Screens

Volatile analysis of the samples was performed using methods based on EPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982; Method 8240, GC/MS Methods for Volatile Organics.

o GC/MS Semi-Volatile Organic Analyses and Screens

Acid and base neutral extractables were prepared and analyzed using methods based on USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, July 1982, Method 8270, GC/MS Methods for Semi-Volatile Organics. Extractions were performed by either Method 3540, Soxhlet Extraction or Method 3550, Sonication Extraction.

o Density - Densities of the samples were determined according to Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 213E, Specific Gravity.

PROJECT 5359-E4SUMMARY REPORT OF ANALYTICAL SERVICES

- o Solids - Solids for the samples were determined according to EPA Methods for Chemical Analysis of Water and Wastes; EPA 600/4-79-020, Methods 160.1, 160.2 and/or 160.3.
- o Metals - Samples were prepared and analyzed according to USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982. Samples were prepared by either Method 3010, 3030, 3050, or 1310 as appropriate for the following metals: antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc. Sample analyses for these metals were performed according to method 6010, Inductively Coupled Plasma Method (SW-846 Proposed Sampling and Analytical Methodologies, 1984).
- o Total Ammonia - Samples were prepared and analyzed according to EPA Methods for Chemical Analysis of Water and Wastes; EPA 600/4-79-020, Method 350.2.
- o pH - Samples that were water soluble were tested potentiometrically according to Method 9045; USEPA SW-846, 2nd edition, July 1982.
- o Sulfides - Sulfide analyses were performed according to EPA 600/4-84-038, Characterization of Hazardous Waste Sites-A Methods Manual, May 1984; Section 17, G.1.2. Determination of Sulfide in Solid Phase Hazardous Waste Disposal Site Samples.
- o Flash Point - Flash points were performed at 60°C according to the procedure specified in USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982; Method 1010, Pensky-Martens Closed-cup Method.
- o Total Cyanides, Water and Wastewater - Water and wastewater samples were analyzed for total cyanide content by USEPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, SW-846, 2nd edition, July 1982 (Revised April 1984); Method 9010, Total and Amenable Cyanide and by Standard Methods for the Examination of Water and Wastewater, 16th edition, 1985; Method 412E, Cyanide Selective Electrode Method.

PROJECT 5359-E4SUMMARY REPORT OF ANALYTICAL SERVICES

- o Alkalinity - The alkalinity of the liquid samples were determined by USEPA 600/4-79-020 (Revised March 1983); Method 310.1, Alkalinity (Titrimetric, pH 4.5).
- o PCBs Water and Wastewater - The polychlorinated biphenyl content of the liquid samples (except oil samples) was determined by USEPA 600/4-82-057, July 1982, Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater; Method 608, Organochlorine Pesticides and PCBs.
- o Viscosity - Liquids were analyzed using a Brookfield viscometer according to ASTM D2983, Volume 5.03, 1983.
- o Total Organic Carbons - Samples were prepared and analyzed according to EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 2nd Edition, 1984, Method 9060, Total Organic Carbon (TOC).

III. ANALYTICAL RESULTS

The following tables detail the results of the various analyses performed on Sample #5359E4-17.

PROJECT 5359-E4TABLE 1 - WASTEWATER TREATMENT DISPOSAL ANALYSIS

SAMPLE IDENTIFIER: Water, black liquid from 12K holding pool
 OHM SAMPLE NUMBER: 5359-17

Parameter	Result
Color	Black
Odor	None
Density	1.01 gm/cm ³
Flash Point, PM, CC	> 95° C
Amenable Cyanide	< 0.2 mg/L
Total Cyanide	< 0.2 mg/L
Total Sulfide	16.0 mg/L
Total Phenols	0.75 mg/L
pH Test	8.1 pH units
Total Suspended Solids	1,330 mg/L
Total Dissolved Solids	14,000 mg/L
Total Solids	15,300 mg/L
Viscosity, Brookfield	Low (insufficient to quantitate)
Total Alkalinity	2,370 mg/L CaCO ₃
Total Ammonia, N	45.3 mg/L
Total Organic Carbon	456 mg/L

PROJECT 5359-E4TABLE 2 - VOLATILE ORGANICS

SAMPLE IDENTIFIER: Water, black liquid from 12K holding pool
OHM SAMPLE NUMBER: 5359-17

Compound	Concentration (mg/L)
Benzene	BDL
Bromomethane	BDL
Bromodichloromethane	BDL
Bromoform	BDL
Carbon Tetrachloride	BDL
Chlorobenzene	BDL
Chloroethane	BDL
2-Chloroethylvinyl ether	BDL
Chloroform	BDL
Chloromethane	BDL
Dibromochloromethane	BDL
1,3-Dichlorobenzene	BDL
1,2-Dichlorobenzene	BDL
1,4-Dichlorobenzene	BDL
1,1-Dichloroethane	BDL
1,2-Dichloroethane	BDL
1,1-Dichloroethene	BDL
Trans-1,2-Dichloroethene	BDL
1,2-Dichloropropane	BDL
Total Dichloropropenes	BDL
Ethylbenzene	BDL
Methylene Chloride	BDL
1,1,2,2-Tetrachloroethane	BDL
Tetrachloroethene	BDL
1,1,1-Trichloroethane	BDL
1,1,2-Trichloroethane	BDL
Trichloroethene	BDL
Toluene	BDL
Vinyl Chloride	BDL

Limit of Detection = 100 mg/L ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5359-E4TABLE 3 - VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Water, black liquid from 12K holding pool
 ETC SAMPLE NUMBER: 5359-17

Compound	Concentration (mg/L)	Detection Limit (mg/L)
Acetone	BDL	200
Acrolein	BDL	500
Acrylonitrile	BDL	500
2-Butanone (MIBK)	596	200
Carbon Disulfide	BDL	200
Ethyl ether	BDL	200
Ethylene Dibromide	BDL	200
Hexanone	573	200
4-Methyl-2-Pentanone (MIBK)	BDL	200
Styrene	BDL	200
Tetrahydrofuran	BDL	200
1,1,2-Trichloro-1,2,2-trifluoroethane	BDL	200
Vinyl Acetate	BDL	200

mg/L = ppm (parts-per-million)
 BDL = Below Detection Limit

PROJECT 5359-E4
TABLE 5 - BASE/NEUTRAL COMPOUNDS

SAMPLE IDENTIFIER: Water, black liquid from 12K holding pool
 OHM SAMPLE NUMBER: 5359-17

Compound	Concentration (mg/L)
Acenaphthene	BDL
Acenaphthylene	BDL
Anthracene	BDL
Benzo(a)anthracene	BDL
Benzo(b)fluoranthene	BDL
Benzo(k)fluoranthene	BDL
Benzo(a)pyrene	BDL
Benzo(g,h,i)perylene	BDL
Bis(2-chloroethyl)ether	BDL
Bis(2-chloroethoxy)methane	BDL
Bis(2-ethylhexyl)phthalate	BDL
Bis(2-chloroisopropyl)ether	BDL
4-Bromophenyl phenyl ether	BDL
Butyl benzyl phthalate	BDL
2-Chloronaphthalene	BDL
4-Chlorophenyl phenyl ether	BDL
Chrysene	BDL
Dibenzo(a,h)anthracene	BDL
Di-n-butylphthalate	BDL
1,3-Dichlorobenzene	BDL
1,4-Dichlorobenzene	BDL
1,2-Dichlorobenzene	BDL
Diethylphthalate	BDL
Dimethylphthalate	BDL
2,4-Dinitrotoluene	BDL
2,6-Dinitrotoluene	BDL
Diethylphthalate	BDL
1,2-Diphenyl hydrazine	BDL
Fluoranthene	BDL
Fluorene	BDL
Hexachlorobenzene	BDL
Hexachlorobutadiene	BDL
Hexachloroethane	BDL
Hexachlorocyclopentadiene	BDL
Indeno-(1,2,3-cd)pyrene	BDL
Isophorone	BDL
Naphthalene	BDL
Nitrobenzene	BDL
N-Nitrosodi-n-propylamine	BDL
N-Nitrosodiphenylamine	BDL
Phenanthrene	BDL
Pyrene	BDL
1,2,4-Trichlorobenzene	BDL

Limit of Detection = 100 mg/L ppm (parts-per-million)
 BDL = Below Detection Limit

PROJECT 5359-E4TABLE 6 - ACID EXTRACTABLE

SAMPLE IDENTIFIER: Water, black liquid from 12K holding pool
OHM SAMPLE NUMBER: 5359-17

Compound	Concentration (mg/L)
4-Chloro-3-Methylphenol	BDL
2-Chlorophenol	BDL
2,4-Dichlorophenol	BDL
2,4-Dimethylphenol	BDL
2,4-Dinitrophenol	BDL
2-Methyl-4,6-Dinitrophenol	BDL
2-Nitrophenol	BDL
4-Nitrophenol	BDL
Pentachlorophenol	BDL
Phenol	BDL
2,4,6-Trichlorophenol	BDL

Limit of Detection = 100 mg/L ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5359-E4TABLE 7 - ADDITIONAL SEMI-VOLATILE HSL COMPOUNDS

SAMPLE IDENTIFIER: Water, black liquid from 12K holding pool
OHM SAMPLE NUMBER: 5359-17

Compound	Concentration (mg/L)
Aniline	BDL
Benzyl Alcohol	BDL
4-Chloroaniline	BDL
Dibenzofuran	BDL
2-Methylnaphthalene	BDL
2-Methylphenol	BDL
4-Methylphenol	BDL
2-Nitroaniline	BDL
3-Nitroaniline	BDL
4-Nitroaniline	BDL
2,4,5-Trichlorophenol	BDL

Limit of Detection = 100 mg/L ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5359-E4TABLE 8 - SEMI-VOLATILE SCREEN RESULTS

SAMPLE IDENTIFIER: Water, black liquid from 12K holding pool
OHM SAMPLE NUMBER: 5359-17

=====
Compound Concentration (mg/L)
=====

No chromatographic peaks present with an area greater than 25% of
the internal standards

PROJECT 5359-E4TABLE 9 - PESTICIDES AND PCBS

SAMPLE IDENTIFIER: Water, black liquid from 12K holding pool
OHM SAMPLE NUMBER: 5359-17

Compound Name	Concentration ug/L	Detection Limit ug/L
Aldrin	BDL	1.0
BHC-alpha	BDL	1.0
BHC-beta	BDL	1.0
BHC-gamma	BDL	1.0
BHC-delta	BDL	1.0
Chlordane	BDL	10.0
4,4'-DDD	BDL	1.0
4,4'-DDE	BDL	1.0
4,4'-DDT	BDL	1.0
Dieldrin	BDL	1.0
Endosulfan-alpha	BDL	1.0
Endosulfan-beta	BDL	1.0
Endosulfan Sulfate	BDL	1.0
Endrin	BDL	1.0
Endrin Aldehyde	BDL	1.0
Heptachlor	BDL	1.0
Heptachlor Epoxide	BDL	1.0
Toxaphene	BDL	10.0

POLYCHLORINATED BIPHENYLS

Aroclor 1016	BDL	10.0
Aroclor 1221	BDL	10.0
Aroclor 1232	BDL	10.0
Aroclor 1242	BDL	10.0
Aroclor 1248	BDL	10.0
Aroclor 1254	BDL	10.0
Aroclor 1260	BDL	10.0

ug/L = ppb (parts-per-billion)
BDL = Below Detection Limit

PROJECT 5359-E4

TABLE 10 - TOTAL METALS FOR WASTEWATER DISPOSAL ANALYSIS

SAMPLE IDENTIFIER: Water, black liquid from 12K holding pool
OHM SAMPLE NUMBER: 5359-17

Compound Name	Concentration mg/L	Detection Limit mg/L
Antimony	BDL	0.1
Arsenic	BDL	0.1
Bismuth	0.025	0.1
Beryllium	BDL	0.1
Cadmium	BDL	0.1
Chromium	0.025	0.1
Copper	0.025	0.1
Lead	0.025	0.1
Mercury	BDL	0.1
Nickel	0.025	0.1
Selenium	BDL	0.1
Silver	BDL	0.1
Thallium	BDL	0.1
Zinc	0.025	0.1
Chromium-Hex	BDL	0.1

mg/L = ppm (parts-per-million)
BDL = Below Detection Limit

PROJECT 5359-E4QC SUMMARY

A. Conventional Analysis:

Phenols-109%	Ammonia-101%
Cyanide-72%	Sulfide-71%

B. GC/MS Priority Pollutant Volatile Organics:

BFB Tune File: See attached
Surrogate Recoveries:

	<u>Blank</u>	<u>Sample 17</u>	<u>Sample 18</u>
Benzene-d ₆	123	94.5	97.3
Toluene-d ₈	138	105	108
BFB	112	82.9	86.8

Volatile Organics Spike Recoveries: (In Percentages)

Benzene	96.2
Bromodichloromethane	98.2
Bromoform	102
Carbon Tetrachloride	104
Chlorobenzene	101
2-Chloroethylvinyl ether	86.4
Chloroform	100
Dibromochloromethane	105
1,2-Dichlorobenzene	118
1,3-Dichlorobenzene	83.8
1,4-Dichlorobenzene	98.1
1,1-Dichloroethane	94.0
1,2-Dichloroethane	97.3
1,1-Dichloroethene	99.8
Trans-1,2-Dichloroethene	95.8
1,2-Dichloropropane	93.7
1,3-Dichloropropenes	118
Ethylbenzene	98.6
Methylene Chloride	104
1,1,2,2-Tetrachloroethane	106
Tetrachloroethene	110
1,1,1-Trichloroethane	104
1,1,2-Trichloroethane	92.4
Trichloroethene	89.0
Trichlorofluoromethane	101
Toluene	106

PROJECT 5359-E4QC SUMMARY (CONTINUED)

Volatile Organics Spike Recoveries (in Percentages): Continued

Additional Compounds

Methyl ethyl Ketone	72.2
Carbon Disulfide	100
Acetone	79.7
Methyl Isobutyl Ketone	77.9
2-Hexanone	72.6
Xylenes	102
Styrene	105

C. GC/MS Priority Pollutant Semi-volatile Organics:

Calibration File: See attached

DFTPP Tune File: See attached

Percent Surrogate Recoveries:

	<u>Spike</u>	<u>Sample 17</u>	<u>Sample 18</u>	<u>Sample 18 dilu 1:10</u>
2-Fluorophenol	80.4	55.7	72.4	71.9
Phenol-d ₅	62.8	41.5	53.0	55.3
Nitrobenzene-d ₅	86.5	79.0	74.6	77.4
2-Fluorobiphenyl	81.4	76.7	81.4	92.7
2,4,6-Tribromophenol	71.5	54.1	66.3	64.4
p-Terphenyl-d ₁₄	102	94.0	71.6	108

Semi-volatile Spike Recoveries: (In Percentages)

1,4-Dichlorobenzene	67.6
2-Chlorophenol	105
Phenol	67.0
N-Nitroso-di-n-propylamine	79.6
1,2,4-Trichlorobenzene	66.3
4-Chloro-3-Methylphenol	94.6
Acenaphthene	71.0
2,4-Dinitrotoluene	77.4
Dibutylphthalate	54.2
Pyrene	68.1

D. Pesticides: Percent Spike Recoveries

Heptachlor	84
Endosulfan	80
Endosulfan sulfate	88
Heptachlor epoxide	76
Beta-BHC	104
Aldrin	76
Gamma-BHC	86

PROJECT 5359-E4

QC SUMMARY (CONTINUED)

E. Metals: Percent Spike Recoveries

Arsenic	102
Barium	107
Cadmium	103
Total Chromium	103
Hexavalent Chromium	119
Copper	100
Iron	101
Lead	103
Mercury	98.5
Nickel	101
Selenium	101
Silver	109
Thallium	106
Zinc	99

Calibration Check Report

Title: VOLATILES BY CRYO PURGE AND TRAP DB-624
 Calibrated: 871112 16:34

Check Standard Data File: >B0343
 Injection Time: 871115 17:34

Compound	$\overline{\text{RF}}$	RF	%Diff	Calib Meth	
ACETONE	.02551	.03632	42.34	Average	(Conc=100.00)
ACROLEIN	.01250	.02238	79.01	Average	(Conc=213.50)
ACRYLONITRILE	.04055	.05316	31.09	Average	(Conc=195.50)
BENZENE	.63774	.74662	17.07	Average	
BROMODICHLOROMETHANE	.44590	.51510	15.52	Average	
BROMOFORM	.37203	.38154	2.56	Average	
BROMOMETHANE	.04395	.32091	749.55	1st Degree	
CARBON DISULFIDE	.59034	.75589	28.04	Average	(Conc=100.00)
CARBON TETRACHLORIDE	.40741	.45107	10.71	Average	
CHLOROBENZENE	.70902	.70426	.67	Average	
CHLOROETHANE	.11404	.18054	58.32	Average	
2-CHLOROETHYL VINYL ETHER	.15088	.17682	17.19	Average	
CHLOROFORM	.53544	.62531	16.78	Average	
CHLOROMETHANE	.11454	.26804	134.02	Average	
DIBROMOCHLOROMETHANE	.46133	.48739	5.65	Average	
1,3-DICHLOROBENZENE	.84984	.68581	19.30	Average	(Conc=49.50)
1,4-DICHLOROBENZENE	.94829	.72229	23.83	Average	(Conc=47.00)
1,2-DICHLOROBENZENE	.85609	.84972	.74	Average	(Conc=57.00)
1,1-DICHLOROETHANE	.43449	.51571	18.70	Average	
1,2-DICHLOROETHANE	.35014	.39728	13.46	Average	
1,1-DICHLOROETHENE	.41395	.52199	26.10	Average	
trans-1,2-DICHLOROETHENE	.36583	.43174	18.02	Average	
1,2-DICHLOROPROPANE	.23410	.30654	30.94	Average	
cis-1,3-DICHLOROPROPENE	.20098	.21909	9.01	Average	(Conc=62.00)
trans-1,3-DICHLOROPROPENE	.59955	.68253	13.84	Average	(Conc=38.00)
ETHYLBENZENE	1.14684	1.20634	5.19	Average	
ETHYLENE DIBROMIDE	.39532	.40930	3.54	Average	(Conc=98.50)
ETHYL ETHER	.07498	.04222	43.69	Average	(Conc=103.50)
FREON 113	.72214	.78086	8.13	Average	(Conc=53.00)
2-HEXANONE	.21742	.29398	35.21	Average	(Conc=100.00)
METHYL ETHYL KETONE	.11728	.16065	36.98	Average	(Conc=100.00)
METHYLENE CHLORIDE	.24251	.27420	13.07	Average	
METHYL ISOBUTYL KETONE	.24651	.35411	43.65	Average	(Conc=100.00)
STYRENE	.68007	.72140	6.08	Average	(Conc=100.00)
1,1,2,2-TETRACHLOROETHANE	.32513	.29827	8.26	Average	
TETRACHLOROETHENE	.45485	.44545	2.07	Average	
TETRAHYDROFURAN	.06284	.09691	54.22	Average	(Conc=110.00)
TOLUENE	.75905	.81739	7.69	Average	
1,1,1-TRICHLOROETHANE	.34453	.35994	4.47	Average	
1,1,2-TRICHLOROETHANE	.24379	.27111	11.21	Average	

*Purge C's
 out Disposal
 used with it
 bb*

RF - Response Factor from daily standard file at 50.00 UG/L
 $\overline{\text{RF}}$ - Average Response Factor from Initial Calibration
 %Diff - % Difference from original average or curve

Calibration Check Report

Title: VOLATILES BY CRYO PURGE AND TRAP DB-624
 Calibrated: 871112 16:34

Check Standard Data File: >B0343
 Injection Time: 871115 17:34

Compound	$\overline{\text{RF}}$	RF	%Diff	Calib Meth
TRICHLOROETHENE	.39591	.43359	9.52	Average
TRICHLOROFLUOROMETHANE	.55180	.54940	.44	Average
VINYL ACETATE	.27275	.27906	2.31	Average (Conc=100.00)
VINYL CHLORIDE	.18505	.34012	83.79	Average
m+p-XYLENES (TOT. CONC.)	1.37251	1.25785	8.35	Average (Conc=92.50)
o-XYLENE	.89023	.94713	6.39	Average (Conc=100.00)
BENZENE-d6 (SURR)	.82425	.90937	10.33	Average (Conc=50.00)
BROMOFLUOROBENZENE (SURR)	.53105	.54311	2.27	Average (Conc=52.50)
TOLUENE-d8 (SURR)	.74732	.79745	6.71	Average (Conc=47.00)

RF - Response Factor from daily standard file at 50.00 UG/L

$\overline{\text{RF}}$ - Average Response Factor from Initial Calibration

%Diff - % Difference from original average or curve

Calibration Check Report

Title: PURGEABLE C'S FOR PERFORMANCE EVALUATION
 Calibrated: 871109 19:59

Check Standard Data File: >80343
 Injection Time: 871115 17:34

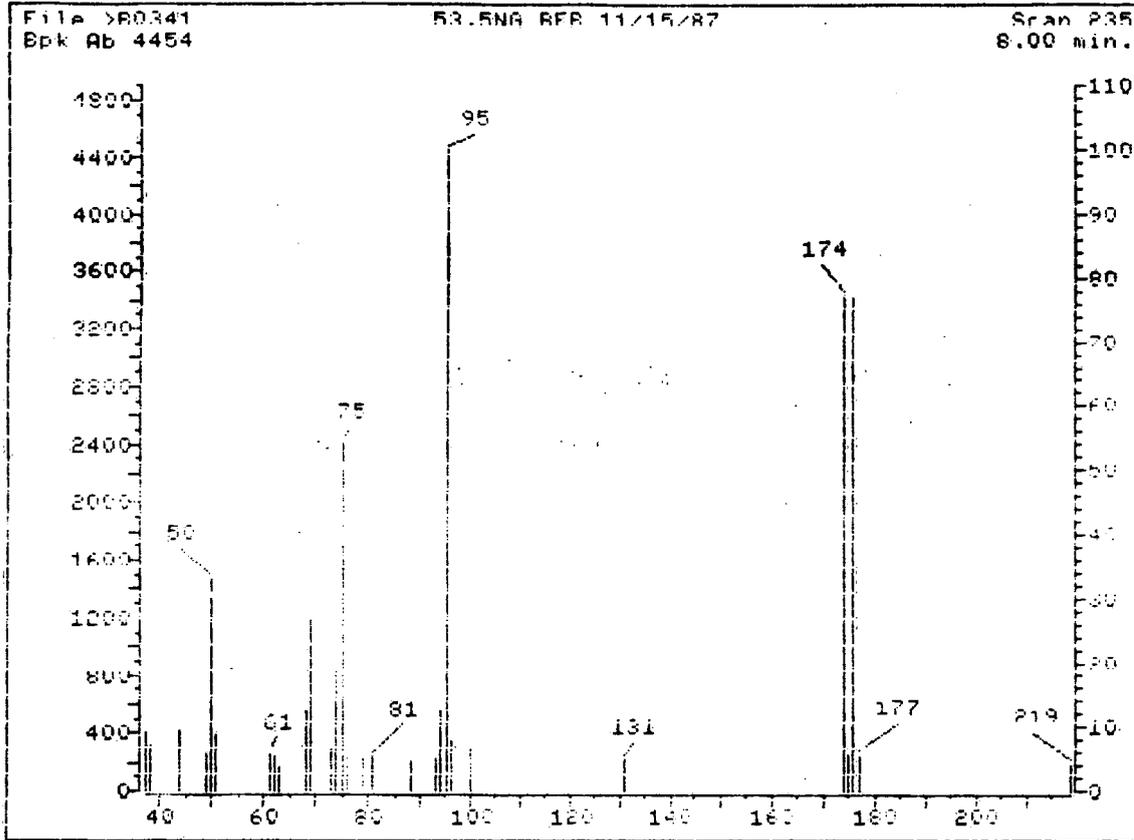
Compound	\overline{RF}	RF	%Diff	Calib Meth	
BROMOMETHANE	.28058	.32091	14.38	Average	(Conc=50.00)
CHLOROETHANE	.12771	.18054	41.37	Average	
CHLOROMETHANE	.10245	.26804	161.63	Average	
VINYL CHLORIDE	.19898	.34012	70.93	Average	
BENZENE-d6 (SURR)	.88563	.90937	2.68	Average	(Conc=50.00)

RF - Response Factor from daily standard file at 50.00 US/L

\overline{RF} - Average Response Factor from Initial Calibration

%Diff - % Difference from original average or curve

:DR
working...



>B0341
235

53.5NG BFB 11/15/87
NRM

File: >B0341 Scan #: 235 Retn. time: 8.00

m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.
37.10	9.070	61.05	5.815	74.05	19.308	93.05	5.052	174.00	76.965
38.05	7.140	62.05	5.344	76.05	53.952	94.05	12.753	175.00	5.658
43.95	9.295	62.95	3.591	76.05	5.366	95.05	100.000	176.00	76.830
49.05	5.860	68.05	12.573	78.95	4.917	96.05	7.656	177.00	5.478
50.05	32.824	69.05	26.718	80.95	5.299	100.05	6.309	218.95	4.086
50.95	8.824	73.05	7.185	88.05	4.625	131.00	5.052		

BRONOPFLUOROBENZENE

CASE NO. _____ CONTRACTOR _____ CONTRACT NO. _____

INSTRUMENT ID M50 2 DATE 11/15/87 TIME 1520

RUN NUMBER 20 QC REPORT NO. _____ ANALYST BB

TUNE CHECK: 2500

<u>M/C</u>	<u>ION ABUNDANCE CRITERIA</u>	<u>% RELATIVE ABUNDANCE</u>	
50	15 - 40% of the base peak	32.9	
75	30 - 60% of the base peak	54.0	
95	Base peak, 100% relative abundance	100	
96	5 - 9% of the base peak	7.66	
173	Less than 1% of the base peak	0	
174	Greater than 50% of the base peak	77.0	
175	5 - 9% of mass 174	5.66	(7.35) ¹
176	Greater than 95%, but less than 101% of 174	77.8	(99.7) ¹
177	5 - 9% of mass 176	5.48	(7.14) ²

¹Value in parenthesis is % of mass 174.
²Value in parenthesis is % of mass 176.

Comments:

Calibration Check Report

Title: SEMI-VOLATILE (625) COMPOUNDS
 Calibrated: 871029 11:48

Check Standard Data File: >A1034
 Injection Time: 871115 19:38

Compound	\overline{RF}	RF	%Diff	Calib Meth
BIS(2-CL-ETHYL)ETHER	.90481	.88056	2.68	Average
1,3-DICHLOROBENZENE	.95271	.83197	12.67	Average
1,4-DICHLOROBENZENE	.97090	.84984	12.47	Average
1,2-DICHLOROBENZENE	.98713	.86424	12.45	Average
BIS(2-CL-ISOPROPYL)ETHER	2.28309	2.19106	4.03	Average
HEXACHLOROETHANE	.46863	.42295	9.75	Average
2-FLUOROPHENOL (SURR)	.65628	.69757	6.29	Average (Conc=65.60)
2-CHLOROPHENOL	.73672	.76657	4.05	Average
PHENOL	1.01611	1.08839	7.11	Average
2-METHYLPHENOL	.75737	.80630	6.46	Average
4-METHYLPHENOL	1.11315	1.18733	6.66	Average
PHENOL-D5 (SURR)	.96721	1.05766	9.35	Average (Conc=81.60)
N-NITROSO-DI-N-PROPYLAMINE	1.07344	1.06185	1.08	Average
BENZYL ALCOHOL	.96940	1.01441	4.64	Average
ANILINE	1.00042	1.04357	4.31	Average
NITROBENZENE-D5 (SURR)	.45921	.41267	10.13	Average (Conc=86.40)
NITROBENZENE	.50721	.45928	9.45	Average
ISOPHORONE	1.08788	.91413	15.97	Average
BIS(2-CL-ETHOXY)METHANE	.58940	.52342	11.19	Average
1,2,4-TRICHLOROBENZENE	.46006	.35536	22.76	Average
NAPHTHALENE	1.12160	.99579	11.22	Average
HEXACHLOROBUTADIENE	.33531	.23661	29.43	Average
2-NITROPHENOL	.25532	.22626	11.38	Average
2,4-DIMETHYLPHENOL	.41661	.41028	1.52	Average
2,4-DICHLOROPHENOL	.37607	.34445	8.41	Average
4-CHLORO-3-METHYLPHENOL	.48742	.46233	5.15	Average
4-CHLOROANILINE	.43443	.13061	69.93	Average
2-METHYLNAPHTHALENE	.81683	.67103	17.85	Average
HEXACHLOROCYCLOPENTADIENE	.15884	.12865	19.00	Average
2-FLUOROBIPHENYL (SURR)	.51412	.43645	15.11	Average (Conc=83.20)
2-CHLORONAPHTHALENE	.47925	.42364	11.60	Average
ACENANAPHTHYLENE	.78805	.69959	11.23	Average
DIMETHYLPHTHALATE	.74235	.62697	15.54	Average
2,6-DINITROTOLUENE	.18046	.15714	12.92	Average
ACENAPHTHENE	.52117	.45220	13.23	Average
2,4-DINITROTOLUENE	.26288	.24418	7.11	Average
FLUORENE	.64286	.55185	14.16	Average
DIETHYLPHTHALATE	.78955	.67316	14.74	Average
N-NITROSDIPHENYLAMINE	.45057	.41750	7.34	Average
AZOBENZENE	.83317	.86648	4.00	Average

RF - Response Factor from daily standard file at 80.00 NG

\overline{RF} - Average Response Factor from Initial Calibration

%Diff - % Difference from original average or curve

Calibration Check Report

Title: SEMI-VOLATILE (625) COMPOUNDS
 Calibrated: 871029 11:48

Check Standard Data File: >A1034
 Injection Time: 871115 19:38

Compound	\overline{RF}	RF	%Diff	Calib Meth
4-BROMOPHENYL PHENYL ETHER	.29093	.22204	23.68	Average
4-CHLOROPHENYL PHENYL ETHER	.32919	.28304	14.02	Average
ALPHA-BHC	.15550	.12784	17.79	Average
HEXACHLOROBENZENE	.39519	.28625	27.57	Average
BETA-BHC	.14550	.10962	24.66	Average
LINDANE(GAMMA-BHC)	.14550	.11627	20.09	Average
PHENANTHRENE	1.06744	.92209	13.62	Average
ANTHRACENE	1.06289	.94682	10.92	Average
DELTA-BHC	.12975	.10853	16.35	Average
DIBUTYLPHTHALATE	1.60732	1.44822	9.90	Average
ALDRIN	.18246	.17065	6.47	Average
HEPTACHLOR	.15265	.14676	3.86	Average
HEPTACHLOREPOXIDE	.13704	.09567	30.19	Average
FLUORANTHENE	1.47721	1.23635	16.30	Average
2,4,6-TRICHLOROPHENOL	.19373	.16491	14.87	Average
2,4,5-TRICHLOROPHENOL	.20725	.18086	12.73	Average
2,4-DINITROPHENOL	.04004	.04087	12.81	1st Degree
4-NITROPHENOL	.14344	.17051	18.87	Average
2-NITROANILINE	.19166	.18837	1.71	Average
3-NITROANILINE	.26513	.20772	21.65	Average
DIBENZOFURAN	.77418	.67450	12.88	Average
4-NITROANILINE	.23121	.28071	21.41	Average
4,6-DINITRO-ORTHO-CRESOL	.11062	.14098	4.10	1st Degree
PENTACHLOROPHENOL	.15503	.19781	5.19	1st Degree
2,4,6-TRIBROMOPHENOL (SURR)	.23979	.18245	23.91	Average (Conc=84.00)
P-TERPHENYL-D14 (SURR)	.88312	.68924	21.95	Average (Conc=76.80)
PYRENE	1.25616	1.03544	17.57	Average
ENDOSULFAN I	.03493	.02848	18.47	Average
4,4'-DDE	.25383	.17930	29.36	Average
DIELDRIN	.15986	.14517	9.19	Average
ENDRIN	.06235	.05189	16.78	Average
ENDOSULFAN II	.04154	.03388	18.45	Average
4,4'-DDD	.50220	.40378	19.60	Average
ENDRIN ALDEHYDE	.04060	.03197	21.24	Average
BUTYLBENZYLPHTHALATE	.59945	.51094	14.76	Average
4,4'-DDT	.43459	.35905	17.38	Average
ENDOSULFAN SULFATE	.10379	.07673	26.08	Average
BENZ(a)ANTHRACENE	1.24935	1.11413	10.82	Average
CHRYSENE	1.21800	1.00917	17.15	Average
BIS(2-ethylhexyl)PHTHALATE	.96453	.87978	8.79	Average

RF - Response Factor from daily standard file at 80.00 NG

\overline{RF} - Average Response Factor from Initial Calibration

%Diff - % Difference from original average or curve

Calibration Check Report

Title: SEMI-VOLATILE (625) COMPOUNDS
 Calibrated: 871029 11:48

Check Standard Data File: >A1034
 Injection Time: 871115 19:38

Compound	\overline{RF}	RF	%Diff	Calib Meth
DI-N-OCTYL-PHTHALATE	1.52514	1.54024	.99	Average
BENZO(B)FLUORANTHENE	1.24502	1.30794	5.05	Average
BENZO(K)FLUORANTHENE	1.20132	1.01907	15.17	Average
BENZO(A)PYRENE	1.09252	1.16976	7.07	Average
INDENO(1,2,3-cd)PYRENE	1.15506	1.21378	5.08	Average
DIBENZO(A,H)ANTHRACENE	1.07928	1.15686	7.19	Average
BENZO(ghi)PERYLENE	1.16394	1.18030	1.41	Average

RF - Response Factor from daily standard file at 80.00 NG

\overline{RF} - Average Response Factor from Initial Calibration

%Diff - % Difference from original average or curve

QC/MS PERFORMANCE STANDARD

Decafluorotriphenylphosphine

CASE NO. _____

CONTRACTOR _____

CONTRACT NO. _____

INSTRUMENT ID MSD1DATE 11/15/87TIME 21²⁵RUN NUMBER 1

QC REPORT NO. _____

ANALYST DWMTUNE CHECK: EM 2000

m/c	Ion Abundance Criteria	% Relative Abundance
51	30-60% of mass 198	59.7
68	less than 2% of mass 69	0 (0) ¹
69	mass 69 relative abundance	68.4
70	less than 2% of mass 69	0 (0) ¹
127	40-60% of mass 198	41.2
197	less than 1% of mass 198	0
8	base peak, 100% relative abundance	100
199	5-9% of mass 198	6.65
275	10-30% of mass 198	23.0
365	greater than 1% of mass 198	2.20
441	less than mass 443	10.7
442	greater than 40% of mass 198	71.0
443	17-23% of mass 442	13.7 (13.1) ²

¹Value in parenthesis is % mass 69²Value in parenthesis is % mass 442

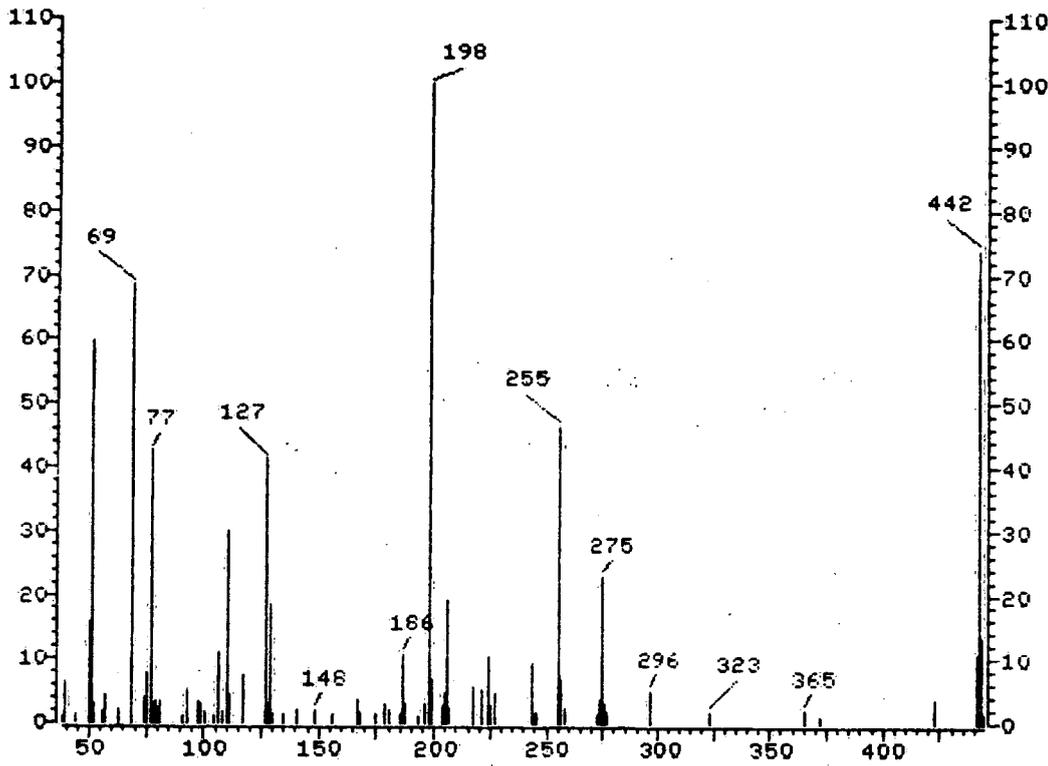
Comments:

File >A1035
Bpk Ab 10

50 NG DFTPP
NRM

11/15/87

Scan 294
8.06 min.



>A1035
294

50 NG DFTPP
NRM

11/15/87

File: >A1035 Scan #: 294 Retn. time: 8.06

m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.
37.90	1.018	80.90	3.335	134.95	1.323	198.85	6.646	257.90	2.373
39.00	6.413	90.85	.922	140.80	1.900	203.95	2.629	273.00	1.435
43.90	1.235	92.95	5.307	147.90	2.173	204.95	4.866	274.00	3.896
49.90	15.769	97.95	3.503	156.00	1.339	205.95	19.288	275.00	22.976
51.00	59.700	98.95	3.127	167.00	3.896	206.95	2.333	276.00	3.078
51.90	2.998	100.95	1.708	168.00	1.804	216.95	5.780	276.90	1.700
55.80	1.780	104.85	1.058	175.00	1.427	221.05	5.387	296.00	5.163
56.90	4.377	106.95	11.047	178.90	3.207	223.95	10.526	323.05	1.796
63.00	1.980	107.95	1.708	180.00	1.972	224.95	2.782	365.00	2.197
68.90	68.422	109.95	30.038	185.10	1.387	226.95	4.610	372.00	1.010
73.90	4.089	110.95	4.377	186.00	10.935	244.05	9.283	423.05	3.832
74.90	7.888	116.95	7.359	187.00	2.966	245.05	1.235	441.05	10.654
77.00	42.593	126.95	41.166	193.00	1.090	245.95	1.772	442.05	74.018
78.00	3.143	127.95	3.207	195.95	3.014	254.90	46.497	443.05	13.396
78.90	3.407	128.95	18.438	197.95	100.000	256.00	6.742	444.15	1.459
80.00	2.365	130.05	1.547						

GC/MS PERFORMANCE STANDARD

Decafluorotriphenylphosphine

CASE NO. _____

CONTRACTOR _____

CONTRACT NO. _____

INSTRUMENT ID MSDLDATE 11/15/87TIME 13^{Y8}RUN NUMBER 3

QC REPORT NO. _____

ANALYST DWMTUNE CHECK: EM

m/c	Ion Abundance Criteria	% Relative Abundance
51	30-60% of mass 198	58.7
68	less than 2% of mass 69	0 (0) ¹
69	mass 69 relative abundance	66.6
70	less than 2% of mass 69	0 (0) ¹
127	40-60% of mass 198	40.5
197	less than 1% of mass 198	0
198	base peak, 100% relative abundance	100
199	5-9% of mass 198	6.56
275	10-30% of mass 198	21.7
365	greater than 1% of mass 198	2.40
441	less than mass 443	10.3
442	greater than 40% of mass 198	73.9
443	17-23% of mass 442	13.9 (18.8) ²

¹Value in parenthesis is % mass 69²Value in parenthesis is % mass 442

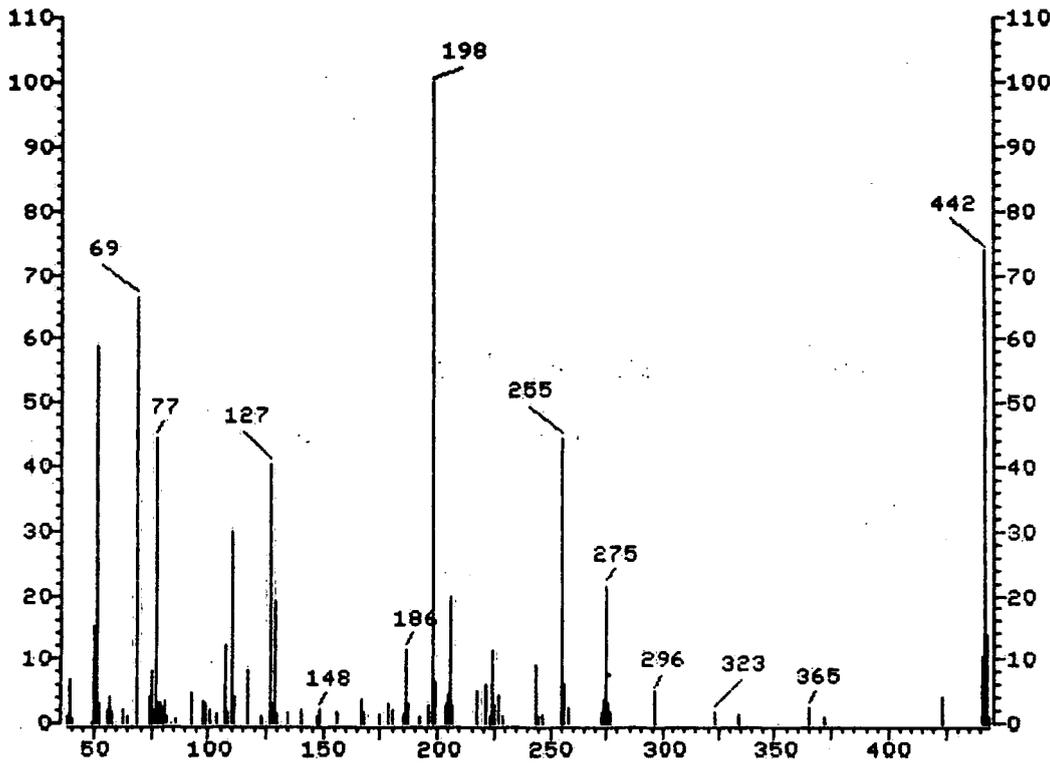
Comments:

File >A1032
Spk Ab 100

50 NG DFTPP
SUB NRM

11/15/87

Scan 297
8.08 min.



>A1032
297

50 NG DFTPP
SUB NRM

11/15/87

File: >A1032 Scan #: 297 Retn. time: 8.08

m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.	m/z	Int.
37.90	.979	78.90	3.134	127.95	3.113	197.85	100.000	256.00	6.205
38.90	6.659	80.00	2.532	128.95	19.047	198.85	6.559	257.90	2.418
39.90	.752	80.90	3.482	129.95	1.390	203.95	2.688	273.00	1.610
48.90	.106	81.90	.893	134.95	1.574	204.95	4.531	273.90	3.624
49.90	15.118	83.85	.014	140.90	1.971	205.95	19.962	274.90	21.664
51.00	58.736	85.85	.624	146.90	.943	206.95	2.581	275.90	2.922
52.00	2.978	92.85	4.787	147.90	2.106	216.95	5.063	276.90	1.631
55.90	1.936	97.95	3.510	156.00	1.645	220.95	5.921	296.00	5.063
57.00	4.163	98.95	3.021	167.00	3.744	222.95	1.135	322.95	1.808
57.90	1.567	100.95	1.929	167.90	1.631	223.95	11.289	334.05	1.312
63.00	1.950	103.95	1.227	175.00	1.496	224.95	2.567	364.90	2.404
64.90	1.035	106.95	12.048	178.90	3.021	226.95	4.404	372.00	1.000
68.90	66.586	107.95	1.787	180.00	1.993	228.85	.943	423.05	4.070
74.00	4.127	109.95	29.974	185.00	1.411	244.05	9.247	441.05	10.289
75.00	7.935	110.95	4.177	186.00	11.544	245.05	1.177	442.05	73.897
76.10	2.078	116.95	7.985	187.00	3.156	246.05	1.404	443.05	13.913
77.00	44.462	122.85	1.177	191.90	1.021	254.90	44.497	444.05	1.085
78.00	2.992	126.95	40.484	195.95	2.801				

**OHM**

O.H. Materials Corp.
 16406 U.S. Route 224 East
 Findlay, Ohio 45839-0551
 419-423-3526

CHAIN-OF-CUSTODY RECORDN^o 33144

PROJECT LOCATION ARKANSAS CHEMICAL Newark, New Jersey	NAME OF CLIENT U.S.E.P.A Region I	PROJECT TELEPHONE NO. 201-589-8215	PROJECT NUMBER 5359-E4.
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ITEM NUMBER	SAMPLE NUMBER	NUMBER & SIZE OF CONTAINERS	DESCRIPTION	TRANSFER NUMBER & CHECK						
				1	2	3	4	5	6	7
1	5359-17	1-1qt. jar	Water, Black Liquid, From 12K Holding Pool 11-6-87/1345 JC ✓✓							
2	5359-18	1-1qt. jar	Brown Liquid, Taken from 12" below surface of Base/Neutral Liquid bulking chamber. 11-6-87/1330 JC ✓✓							

Person Responsible for sample J. BUCKLAND	Affiliation OHM	Date 11/6	Time 1400	TRANSFER NUMBER	ITEM NUMBER	TRANSFERS RELINQUISHED BY	ACCEPTED BY	DATE	TIME
Purpose of analysis (use back of front sheet if necessary) WASTEWATER TREATMENT AQUEOUS DISPOSAL ANALYSIS (7 DAY TURNAROUND) QUESTIONS - CONTACT JIM BATES, N.E. REGION				1	1-2	<i>[Signature]</i>	FED EX	11/6/87	1500
				2	1-2	<i>[Signature]</i>	Edward Kelley	11/7/87	1030
				3					
				4					
				5					
				6					
				7					